CLAIMS

1. A device for regulating the biasing voltage (V_{pol}) of column control circuits of an screen array made of LEDs distributed in lines and columns, the column control circuits comprising a current mirror having a reference branch (bref) and several duplication branches (b1 to bn) connected to the biasing voltage (Vpol), each duplication branch (bi) being coupled to a column (Ci) of the screen, the reference branch being connected at a reference node to a reference current source (10) providing a desired luminance current (Il), said device comprising:

first measuring means providing a first signal representative of the voltage of at least one of the columns;

second measuring means providing a second signal representative of the voltage of the reference node; and

an adjustment circuit receiving the first and second signals and being adapted to increase the biasing voltage when the first signal is lower than the second signal and conversely.

2. The device of claim 1, wherein each branch (bi) of the current mirror includes a PMOS field effect transistor (Pi), having a source connected to the biasing voltage, the gates of each branch being connected together, the drain and the gate of the transistor of the reference branch being connected to the reference current source (10), the drains of the transistors of the duplication branches being connected to the columns (C1 to Cn).

3. The device of claim 1, wherein said first measuring means comprise for each column (Ci) a diode (Di) having an anode connected to the column (Ci) and having an cathode connected to a first observation current source (15) and to a first input of the adjustment circuit, and wherein the second measuring means comprise a diode (Dref) having an anode connected to the reference node and a cathode connected to a second observation current source (16) and to a second input of the adjustment circuit.

4. The device of claim 3, wherein the cathodes of all the diodes (Di) are connected to the first input of the adjustment circuit by a switch (31), a capacitor (32)

being connected between the first input of the adjustment circuit (CR) and a fixed voltage node.

5. The device of claim 3, wherein the adjustment circuit comprises an error amplifier (20) receiving the first signal on a positive input and receiving the second signal on a negative input, an output of error amplifier (ER) being connected to a D.C./D.C. voltage converter outputting the biasing voltage (Vpol) and being adapted to increase the biasing voltage (Vpol) when the first signal is higher than the second signal and conversely.

6. The device of claim 5, wherein error amplifier (20) comprises first and second PMOS transistors (40, 41) having their gates respectively connected to positive and negative inputs of the error amplifier, the source of each one of the first and second transistors being connected to the biasing voltage (Vpol) by a current source (42, 43), the sources of first and second transistors being connected by a resistor (R1), the drains of first and second transistors being connected to a converter (44) providing the error signal, the source and drain of a third PMOS transistor (45) being connected to the source and drain of the first transistor (40), the gate of the third transistor being connected to a fixed voltage (Vprotect)).

7. A method for regulating the biasing voltage (Vpol) of column control circuits of an screen array made of LEDs distributed in lines and columns, the column control circuits comprising a current mirror having a reference branch (bref) and several duplication branches (b1 to bn) connected to the biasing voltage (Vpol), each duplication branch (bi) being coupled to a column (Ci) of the screen, the reference branch being connected at a reference node to a reference current source (10) providing a desired luminance current (Il), comprising the following steps:

- providing a first signal representative of the voltage of at least one of the columns;

- providing a second signal representative of the voltage at the reference node; and

- increasing the biasing voltage when the first signal is higher than the second

signal and conversely.

8. The method of claim 7, wherein the first signal is an image of the maximum voltage of the activated LEDs.